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ABSTRACT

The final summary of the progress, accomplishments, findings, and recommendations of a project to develop and implement a management information system for long-range planning of vocational education at the local level is presented in this report. Goals and purposes of the original proposal are stated and their development traced in research, work tasks, and staff organization. Procedures for developing and testing planning models are outlined, and major activities and events summarized, as are major findings and recommendations. The bulk of the report presents a description of publications and outputs of the project, and directs the reader to these publications for more detailed presentations. These publications include "A Policy Information System for Vocational Education," the computer planning model for vocational education, a monograph on the various systems involved in planning for vocational education, an annotated bibliography, a report presenting the need for a doctoral degree program with an emphasis in educational planning, a report on the implementation of the policy information system in several test cities, and a data element dictionary for vocational education. (BL)

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FINAL REPORT

Project No. 498AH50216
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Middle Cities Education Association
Michigan State University
East Lansing, Michigan

THE DEVELOPMENT AND IMPLEMENTATION OF A MANAGEMENT AND INFORMATION
SYSTEM FOR LONG-RANGE PLANNING OF VOCATIONAL EDUCATION PROGRAMS AT
THE LOCAL LEVEL

March, 1977

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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OE 012 430

FINAL REPORT: LONG-RANGE PLANNING FOR VOCATIONAL EDUCATION

ABSTRACT

This report is a final summary of the progress, accomplishments, findings, and recommendations of the project entitled "Development and Implementation of a Management Information System for Long-Range Planning of Vocational Education at the Local Level." Conclusions and findings summarized in this report are the result of an 18-month research effort by the Proaction Institute, a research division of the Michigan Middle Cities Education Association.

The report begins with a summary of the goals and purposes of the original proposal and traces how these were translated in research and work tasks and staff organization during the early months of the grant period. Procedures for developing and testing planning models through research are outlined. Major activities and events, including the hosting of a national conference on the local administration of vocational education are summarized as are major findings and recommendations concerning long-range planning for vocational education.

The bulk of the report is devoted to a description of the seven major publications and outputs of the long-range vocational education planning project. A major purpose of this final report is to direct the reader to these publications for a more detailed presentation of research findings, planning models and recommendations. These publications include The Policy Information System for Vocational Education, the computer planning model for vocational education, a monograph on the various systems involved in planning for vocational education, an annotated

bibliography, a report presenting the need for a doctoral degree program with an emphasis in educational planning, a report on the implementation of the policy information system in several test cities, and a Data Element Dictionary for Vocational Education.

FINAL REPORT

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INTRODUCTION: BACKGROUND OF THE PROBLEM

In a nation which already has the world's most elaborate and expensive system of formal education, suggestions for planning are likely to fall on deaf ears. But most people probably would agree that the educational system we have can be improved. In this era of stable or declining school enrollments throughout wide areas of the U.S., planning will likely be the key to increasing quality now that the era of providing for quantity has passed. It will also be a crucial factor in organizing and allocating scarce resources that translate into the vocational education components of facilities, personnel, equipment, and curriculum.

Several problems confront attempts by educational organizations to undertake long-range planning. One fundamental problem is that school administrators often have just time enough to deal with day-to-day administration and crises; time to plan ahead for more than a few months or a year at a time is perceived as a luxury and consequently received low priority. Few school districts have established planning offices or hired staff members who are charged with carrying out planning activities. For those administrators who do have an interest and orientation toward long-range planning, the data base and methodology to carry out such planning has not been available. Attempts at gathering the necessary data and developing a workable methodology have been infrequent because these activities are among the most time consuming parts of the planning process.

The difficulty of the planning process does not negate but accentuates planning need. Yet the word planning is all too often misunderstood.

To many educators the word carries negative connotations, implying centralization of power, greater federal and state control, and a decrease in local autonomy. These perceptions, however, need not be true. Planning is nothing more than preparing for the future, whatever form that preparation takes. All individuals and organizations that survive for any length of time are involved in planning. The question becomes then not whether to plan, but how well.

Several problems have been inherited from the explosive growth era in education, especially vocational education, that occurred during the 1960's. Increasing numbers of students, programs, personnel, and dollars made planning easy and highly vulnerable to more long-range trends. During periods of rapid growth when demand outstrips supply, institutions tend to be satisfied with straight line projections of input requirements while giving little consideration to complexities and implications of output requirements.

Another planning problem revealed during the 1960's corresponds to a national phenomena. This relates to the assumptions commonly held during that era that any problem or demand confronting our society can be solved on a crash basis merely by committing enough dollars and enough effort to find the answers. Such a crisis-oriented approach negates the wisdom of a more deliberate consideration of long-term goals, the availability and cost of suitable responses to problems, and the various alternative possibilities which should be examined prior to action.

The establishment of new schools, construction of new buildings and employment of large staffs were too frequently pursued during the golden decade of the 60's on this crisis-crash pattern. As a consequence, we now find half-filled school rooms, duplication of programs, entire schools abandoned, and thousands of dollars of equipment collecting dust. Worse yet, students are being trained for occupations for which very little hope of employment exists, while new and emerging occupations experience a shortage of skilled workers.

The final problem planning has inherited the past decade involves growth as an index of success. Administrators took great pride in reporting increased enrollment, additional staff, more classroom space, increased budgets, and other gross indices to illustrate the success of the schools to the public. This growth syndrome was particularly effective with legislators who characteristically are moved to approve appropriations for any growing enterprise. Hence education went to great efforts to demonstrate increased numbers and increased services as the way to win needed funding.

The dilemma confronting education in the future in light of this orientation has already been documented. Secondary education is enroute to a stabilization or no-growth period of existence. Granted that in pockets of the nation, significant growth will occur while others will experience absolute declines. These pockets and regions will experience the effects of population shifts and of migration,

however, nationwide the trend is clearly toward a period of no growth. How will the field of education learn to adapt to a no-growth market within a society which has no psychological understanding of a no-growth phenomena? How can vocational education convince the public and legislators that the educational enterprise is successful even though student enrollments are not growing and perhaps decreasing? One of the greatest challenges in the decades ahead will be to introduce educators and others to new criteria of success where human services are concerned.

Several "futures" will be important for effective planning of individual school programs as well as for state systems into the 1980's, and will apply to strategic long-range plans as well as to tactical short-range objectives.

Such variables include enrollment, financial resources, programs, faculty, facilities, and management. Vocational education, as an integral part of American secondary education can not be exempt from these concerns.

Comprehensive long-range vocational educational planning does not now exist at the state or local district level. Chief among the reasons for this absence of planning is the lack of technology for planning. There does not exist any identifiable data base to which technology can be applied and no organizational capacity to manage the planning process.

In addition, few schools have planners as such. Within the state of Michigan alone, only five of the 550 school districts have a professionally trained planning staff. None of these planners are technically trained in vocational education planning. This planning when it does occur is based on methodology used for the past fifty or so years.

Vocational education planning will prove to be among the most complex types of planning since a multitude of levels of government and quasi-government agencies are involved. Federal and state funding of vocational education has provided relief for the local district in regard to financial support, but it also demands both state and local planning. State planning is essential but it must extend to the operating district. And the local district cannot escape the responsibility for planning for the needs of its students and the community. A continuous planning process is necessary to insure regional, state and local sensitivity to community needs.

Government support of vocational education at the post-secondary and secondary level has extensively impacted planning. This governmental activity exists on five levels: federal, state, multi-county, intermediate districts, and local districts. The interfacing and coordinating of all these impact levels is essential if the student and the community is to be served effectively and efficiently. It then becomes imperative that a local planning technology and capacity be

developed so that planning can be integrated with programming.

In addition, vocational education is further complicated by its unique relationships with the non-educational publics including both governmental and private enterprise. Vocational education must act and react with governmental agencies concerned with job markets placement, with agencies operating training programs, with community agencies, and with business and industry.

It is this matrix of considerations and questions concerning the state and status of planning in secondary education and vocational education upon which this report was based.

PURPOSE AND OBJECTIVES

The major goal and objective of the study has been to develop and pilot test a computer-based management and information system to aid local decision-makers in planning for vocational education. In summary, the problems identified and tackled by this study include the fact that long-range planning for vocational education was urgently needed, but the required data base had not yet been developed. What data and components pertaining to vocational education such as occupational demand, student interest, finances, facilities, instructional needs and others needed to be incorporated into a planning model was another major area that required attention. An identifiable data base, the technology to interpret such a bank of data as well as the availability of trained personnel to initiate and manage a program of comprehensive planning were

lacking when the project began.

To meet these problems the project staff sought to identify existing data related to vocational education planning; and to formulate, apply, and refine planning technology through actual project operations. This effort has focused on providing four kinds of information:

1. An organized planning process applicable to long-range planning for vocational education;
2. A comprehensive educational policy information system that would be designed and implemented on a test basis in three local school districts;
3. A suggested structure and curriculum for a much needed doctoral program in educational planning; and
4. An exploration of and description of current and future concepts and trends relating to long-range planning for vocational education.

In developing the computer-based management and information system, the project team set out to organize data components for a long-range plan for vocational education into the areas of commuting demographic data, community employment data, and regional, state and national planning data. The goal was to gather and classify this information into a form that could then yield such basic prediction components and crucial information as future school enrollment, and program enrollment projections for specific areas of vocational education.

With this information complete and in logical categories, the staff focused on generating models that could predict needs in the next level of systems that form the structure of vocational education.

These included vocational program planning alternatives, facility needs and alternatives, staff requirements and alternatives, and financial requirements and alternatives.

PROCEDURES

The initial step in this project was the selection and organization of the staff. General supervision of the project has been the responsibility of Dr. C. Robert Muth, Executive Director of the project and the Middle Cities Education Association, and Associate Dean at Michigan State University's College of Education.

Project Director, Dr. Roger Hamlin of Michigan State University was charged with the day-to-day administration of the project, the supervision of research assistants, and integration of the diverse components during the duration of the project.

Three interns in the field of vocational education who were already pursuing research in planning for vocational education and related areas were selected to conduct the field testing of the policy information system, the model for vocational education planning at the local level. These interns were directly responsible for the day-to-day operations of their own vocational education program and are recognized as highly successful educators. Jack Martin of Flint is director of the large, urban Flint School District's Placement Program. Clifford Jump, of Battle Creek, directed the Calhoun County Skill Center during the project and has recently taken an administrative post in the College of Agriculture at Michigan State University. Rounding out the intern team

was Milton Miller, the Facilities Planner for the Grand Rapids School District. The three test sites represent a diverse cross section of secondary school systems ranging from urban to largely rural districts and from a local school district to a county-wide administrative approach.

The remainder of the staff consisted of graduate students from the College of Education and the School of Urban Planning. Their duties have spanned a wide range of responsibilities including researching and analyzing current research, delineating and developing sections of the policy information system, and compiling a final manual for using the developed model.

After the staff had been selected, the entire project team participated in several in-service training sessions. These sessions were designed to explore areas of expertise represented by various individuals to acquaint the staff with the overall project design and objective, and to assign specific responsibilities. These in-service training sessions also featured a number of prominent lecturers in the field of vocational education and manpower planning. These included Ken White, State of Michigan Manpower Bureau; Arnold Loomis, Supervisor of the Michigan Department of Education's Supplemental Support Program; Colonel Goyt, Executive Director of the Lansing Tri-County Regional Manpower Administration; Harvey Ollis, Program Specialist, Michigan Department of Education; Cole Brembeck, Assistant Dean, Director of the Institute for International Studies in Education at Michigan State University; William Florida, Career Education Planning Director for the Lansing area; Chester Francke, Educational Systems Planning, General Motors; and Alden Briscoe

of the Genesee Regional Manpower Planning Council. These guest speakers provided a wide range of perspectives on the current state of the art of the many diverse aspects of vocational education planning.

The staff also participated in a two-day intensive in-service program provided by the Ohio Center for Vocational Education at the Ohio State University.

Upon completion of the in-service period, it was decided that regular weekly meetings would be held. These meetings throughout the project provided the opportunity for each staff member to raise questions, present new ideas or issues for consideration, and to serve as a point of reference for coordination and integration of the various components of the project.

Each member of the staff conducted a comprehensive review of literature related to the planning model to determine the extent of any previous research performed in their area, and to acquaint themselves with other on-going activities related to Policy Information Systems.

After the literature review was completed, the staff designed seven sub-component areas that would serve as sections of the Policy Information System model. These seven sections which came to be called "tabs" are:

1. Enrollment
2. Student Interest
3. Manpower Needs
4. Program Projection
5. Instruction Personnel
6. Costs
7. Program Budgeting

The major thrust of the project staff for several months was directed toward development of this Policy Information System model. Activities included identification of data sources, development of a methodology for collecting and analyzing data, and compilation of the components of the model into a single manual for use. As preliminary forms of each component had been developed they were reviewed by the entire staff for critical analysis and revised before being submitted to the systems planner. The systems planner then translated these methodologies into acceptable computer formats. It was decided that two forms of the Policy Information System model would be developed. The first form would acquaint the user with the planning process and provide a technique for translating the experience and knowledge of the user into quantitative estimates. The second would be an expansion of the first and would present a more comprehensive and reliable means of projection.

If any model is to be successful it must be tested, refined, and tested again. In addition, no model designed to assist planners can be successful if it won't work, is too difficult to execute or consumes too much time from an already crowded schedule. To avoid these problems and in hopes of providing a system that would be used rather than merely ignored, the three interns on the project staff conducted on-site pilot tests using the model developed by the researchers. The interns collected and applied local planning data on enrollment, student interest, occupational projections, finances, and personnel to the model and attempted to assess its success and/or failure. Based on these continuous testings, the researchers were able to progressively refine the components

of the model into its present form. A more comprehensive report on each on-site test is contained in a case study document on implementing vocational education planning.

Once the development of the Policy Information System model was successfully underway, the staff began to address the overall question of a comprehensive planning process that can be applied to vocational education. This effort has culminated in the writing of a series of short monographs which address the applicability of the planning process to vocational education. The monographs explore in detail the nature and characteristics of the seven components included in the Policy Information System model. The monographs which are integrated into a report also discuss several other crucial items that must be considered in a comprehensive planning process for vocational education -- facilities, placement, and the interface between educational planning and other community planning systems. The report describes the planning process in detail, examines organizational structures for educational planning, and lastly discusses future trends in the concept of vocational education.

An important component of the procedures of the project, operating simultaneously with the steps listed above, was the participation of the advisory board. The advisory board met three times during the course of the project, once in July of 1975, once in November of 1975, and once in May of 1976. In addition to these formalized meetings, advisory board members were available to guide the staff throughout the course of the project, and constant contact was maintained with them.

The first meeting of the advisory board concentrated on formulating the precise boundaries of the project and specific direction. The advisory group assisted by providing conceptual guidance, and by directing the staff to key sources of information. At this meeting, the staff met in groups with selected members of the advisory panel to discuss each of the project goals. The November meeting was used to check the progress and the content of the staff effort. The most important component of this reunion was a meeting involving the three interns and the three superintendents to formulate a plan for testing the project's products and to establish an agreement of superintendent support for intern efforts.

The May meeting was held in conjunction with the 1976 National Vocational Education Research Conference on Improving the Local Administration of Vocational Education which was administered by the staff in cooperation with the Bureau of Occupational and Adult Education of the U.S. Office of Education. At the May meeting, the final results of the project were presented before they were refined for publication.

The Vocational Education Research conference was also a significant input into the project's development. Not only were pieces of information derived from the conference used in the refinement of the project's products, but the process of preparing for the conference brought project staff into contact with project directors in other parts of the country and national experts in fields important to vocational planning. The conference was divided into three parts: a summary of other Part C research projects in the local administration priority area, and two symposia. The symposia were entitled, "Long-Range Planning for Vocational Education" and "Education and the Community." Symposia speakers were as follows:

SYMPOSIUM ON LONG-RANGE PLANNING FOR VOCATIONAL EDUCATION

Planning for Vocational Education

Arthur Lee
Project Director
Project Base Line
Northern Arizona University

Career Education and Vocational Education Planning

Keith Goldhammer
Dean
College of Education
Michigan State University

Education Planning and Private Sector

Chester Francke
Director
Education Systems Planning
General Motors Corporation

Ties Between State and Local Management Information Systems

Garth B. Yeager
Project Director
Management Information System
Illinois Office of Education

SYMPOSIUM ON EDUCATION AND THE COMMUNITY

Impact of The Boundless Resource on the Local Administrator of Vocational Education

John N. Gentry
Executive Vice President
National Manpower Institute

National Hearings on Education and Work Transition

George L. B. Pratt
Special Assistant to the Secretary
on Education/Work
U.S. Department of Commerce

Education and Work Incentive Program

Joseph Nedro, Director
Office of the Assistant Secretary
Manpower Administration
U.S. Department of Labor

Perspectives on Improving the Local Administration of Vocational Education

Bruce Rinehart
The Center for Vocational Education
The Ohio State University

The next section of this final report takes a detailed look at the major published research and products of the Middle Cities project on long-range planning for vocational education.

RESEARCH PRODUCTS

The central purpose of this project was to develop an organized planning process that can be applied to vocational education at the local level. This effort has culminated in a number of distinct but interrelated reports and this section will consider the major contents and findings represented in each report.

The project staff began by listing and investigating all those components of information and system relationships relevant to long-range planning. It became apparent very early on, however, that the result of such a course of action would be a product too complex and involved to be used by typical vocational administrators. There was a need to boil it down to only those factors most crucial to the planner's task. At the same time, it was felt that the difficult and valuable work already completed should be shared with the vocational education community in some form.

It was decided, therefore, to produce a planning model and information system at several levels of complexity and sophistication. The shortest version would be a pamphlet of only a few pages. It would briefly describe the process and provide a set of forms for administrators to use to fill in key data to be processed at some central location. The purpose of this short form would be to interest the administrator in the process and give him a quick return of information with very little input of time on his part.

A second version would be a step-by-step manual for working through the best methods of a bare bones planning system. The third version would be a complete computer based system with several alternative methods for each step of the process and an accompanying programmed text for those districts without access to computer facilities. The fourth level would be a comprehensive discussion of the vocational planning process with a more extensive coverage of all aspects of planning including those not easily included in a computer program. This comprehensive version would then act as a reference for the more innovative planner interested in building beyond the transferable information system developed by the project. It might also act as a text in planning for future vocational administration.

Based on the preceding logic, the staff produced and tested the following products:

Vocational Education Summary Planning Program -- The summary planning program is the shortened version of the planning model and is designed to act as an initial handout for any training sessions to begin vocational administration in planning and utilizing computer based systems.

Preliminary Long-Range Planning Model -- This document is a boiled down version of the complete computer based system. It has been reduced to only 50 pages of step-by-step procedures and fill-in-the-blank-forms so as to teach the administration the entire process. It contains only the "best projection method for each step of the process so as to avoid confusion and frustration."

Policy Information System for Vocational Education -- This was the key document for developing a management information system for planning for the local vocational administrator. The overall purpose of this document is to provide school administrators with a single tool to assist them in preparing for the future. School administrators and planners urgently need such a tool to take steps now that will make their vocational education programs more effective several years from now. Formulating an image of the future is so important since so many components of a good vocational program require long-range advanced planning.

Utilization of the step-by-step methods and techniques described in the policy information system will help the school planner organize information and ideas toward an orientation of the future by:

- 1) The system points the school policymaker to the key variables affecting the future of the local vocational education program.
- 2) It provides a list of the best sources of base information for each of the key variables;
- 3) It offers some methods for understanding and determining the interrelationships between the key variables as they interact over time.

These major variables that were incorporated into the policy information system correspond to the seven sub-component areas established early in the project's research and design phase and include: enrollment, student interest, manpower needs, program projections, instruction personnel, costs, and program budgeting.

Each of these areas were incorporated into eight tabs which form the heart of the Policy Information System for Vocational Education. Each tab provides a step-by-step "cookbook" for the following components into a comprehensive planning process:

TAB #

1. Total District Enrollment
2. Student Interest
3. Labor Market Demand
4. Program Enrollment
5. Instructional Staff Needs
6. Instructional Staff Cost
7. Capital Outlay
8. Consumables Cost

Most of the tabs are linked and build on each other throughout the process. For instance, the first four tabs fall into Part One which begins with steps for assessing the future need for, an interest in vocational programs. Part Two, which includes the last four tabs, takes the projected programs of Part One and translates these into resource requirements and costs.

A secondary component of this planning package is a set of forms provided for computer processing of key elements in the planning process. The computer processing allows for greatly increased sophistication and a greater data base for making projections. It is important to realize, however, that computer facilities are not necessary for the use of the eight basic tabs in the policy information system and that most of the key calculation in that model can be carried out by hand. The computer component of the policy information system will be explored in more depth in the following pages.

The planning model presented in the system is designed at several levels of complexity in order to be useful to a wide range of user types. The authors feel that the real value of this model does not lie simply in its use, but through understanding the planning process that it utilizes. For this reason, the model is constructed in such a way that the planner can use the model in segments, "pull it apart," for analysis, and put it

back together discarding those parts not appropriate to the local situation.

The policy information system and its computer components are different from the more commonly known management information systems in the following ways:

- 1) The system is specifically designed to assist school officials in making major policy decisions which have long-range implications rather than attempting to act as a direct aid in day-to-day management decisions.
- 2) As such, it is not oriented toward the storage and retrieval of massive amounts of data, but to the efficient utilization of key variables.

Policy Information System: Computer Program -- For the most part, the computer program booklet is an extension and translation of the Policy Information System for Vocational Education's concepts and methodologies into a simple computer format. The booklet not only contains this translation in the form of a computer program, but goes one step further to provide a sample output representing five-year projections of various planning needs in the field of vocational education.

The two major concerns guiding the program's design and execution are simplicity and flexibility. The program contains uncomplicated assumptions, explanations, definitions, and computations that are all thoroughly referenced and explained in the sample output and in the Policy Information System. The flexibility of the computer program allows its user to choose one method of projection over another, or to weigh one projection more heavily than another. In fact, some methods rely on an administrator's professional judgment as actual input in computing the projections.

The computer program, like the Policy Information System, is divided into eight areas called Tabs. Each Tab provides the user with projections in a specific area of vocational education. These subject areas

include total district enrollment, vocational education program enrollment, teaching staff needs, and staff, capital and consumable costs.

The sample output and its accompanying explanation serve to further familiarize the user with the methods employed in the projection and also allow the administrator to form a better understanding of the ways in which many of the critical variables interact. For example, Tab Four represents a composite enrollment projection, giving the administrator a clear understanding of the roles that student interest, labor market demand, eleventh and twelfth grade enrollments, and professional judgement play in the process.

Planning For Vocational Education -- This document is a series of chapters on the components that are curcial to planning including the labor market, student interest, curriculum, facilities, instructional needs, finance, placement, and the relationship between vocational planning and other planning systems in the community. It is the comprehensive version of the planning process mentioned earlier. The organization of the text follows the basic format of the Policy Information System, however the book is intended to provide a broad overall introduction to the major concepts involved in vocational planning. A very basic purpose is to introduce educators to the planning process and then show how the process can be linked to vocational education. In each of the chapters, the text directs the prospective planner to important sources of data necessary for vocational planning and then suggests various alternatives for utilizing that data in an active,

ongoing long-range planning program. In addition, existing and preferred administrative and organizational structures for planning are examined, criticism and trends in vocational education are discussed, and future trends for vocational education are explored.

The text is written in a simple straightforward style designed to generate interest in long-range planning. In addition to demonstrating various methods for undertaking long-range planning, Planning For Vocational Education points out the financial and social reasons and benefits that call for a planning effort.

Chapter I of the book provides an overview of vocational education, the planning process, and current pitfalls and the state of the art of vocational planning. Chapter II and III look at the two major systems being served by vocational education, the student and the economy. Chapter II describes occupational planning as it relates to vocational education, and Chapter III analyzes methods for projecting and evaluating student interest in vocational education courses.

Chapters IV-VIII look at systems internal to vocational education. Chapter IV suggests a process for translating labor market needs and student interest into curricula. Chapter V looks at planning for educational facilities, and Chapter VI discusses planning for instructional personnel. Chapter VII offers methods of predicting future costs and techniques for budgeting for programs, personnel, equipment, and facilities. The eighth chapter introduces long neglected opportunities and

the ability of placement programs to play an integral role in the process of data gathering and evaluation of vocational education programs. Finally, Chapter IX touches a subject which has become of increasing importance in recent years -- the relationship of vocational education planning and other planning systems such as the city planning department, CETA, and regional planning organizations.

Implementing Long-Range Plans for Vocational Education -- This report describes the test application and implementation of techniques and methods developed in the planning model or policy information. It details the implementation process, compares differences between sites in organization structure and test procedures, and offers conclusions about the implementation process and the model in general which can be applied to the use of the model in other sites.

The implementation stage is probably the most difficult part of the planning process since it is a step where concrete and conceptual plans actually intersect with the ingrained ways and methods of doing things practiced by institutions, people, and bureaucracies. The implementation report describes the various problems and difficulties that occurred during the pilot test of the model at the three sites in Grand Rapids, Battle Creek, and Flint which represent diverse educational environments and structures. In Grand Rapids, for instance, the test group attempted to bring about co-ordination of all the facilities in the Grand Rapids area offering vocational education. The magnitude

and complexity of this problem became clear immediately and the project points out the need for this type of co-ordination in a regional labor market along with the difficulties in achieving co-ordination and effective communication.

Vocational Education: An Annotated Bibliography -- This document is a listing of the major sources and publications providing information on vocational educational planning. The bibliography contains sources from the literature on vocational education, urban planning, labor market planning and education. The bibliography is organized in three parts and provides annotated listings of important sources, an author index, and a key work index.

Data Element Dictionary for Vocational Education -- This document provides a foundation for the Policy Information System from which initial planning efforts can be systematically incorporated into present program activities. This dictionary offers the planner all structural aspects of program design which must be dealt with for successful program implementation. It is designed to help the planner organize data elements for storage and easy accessibility.

The Ph.D. or Ed.D. With Emphasis in Educational Planning -- This report which explores the feasibility and need for a doctoral program in education planning addresses one of the more crucial problems with vocational education planning -- the lack of skilled personnel with a background in the techniques and methodologies of planning, but who at the same time have a familiarity with the field of education.

Realizing that establishing any new degree program is dangerous during these times of retrenchment, the report and project staff support this proposal for several reasons:

1. Training in planning techniques is necessary to produce a professional planner equipped with the skills necessary to deal with the complex problems facing educators.
2. There is not now a specific advanced degree program related to educational planning.
3. There will be employment opportunities for holders of this advanced degree.

The suggested program offers three models. The first is based on a competency approach, designed to use those professional experiences that would help bring the candidate from a known level of competency to a needed level of competency. The second model follows the more traditional approach to the doctorate. The program consists of a major, a cognate, and a minor, a research competency and culminates in the dissertation. Model three follows the overall outline of the second model. There would be a major and a minor, but these would come from specific departments. A research competency would be required along with a computer skill area. The program would culminate with a dissertation in the area of educational programs.

The report explores the range of courses at Michigan State pertaining and relating to education and urban planning and suggests a proper mix of courses that could be incorporated into such a Ph.D. program.

One of the goals of the project was to produce dissertations. The following is a list of the dissertations produced by the project staff.

Jump, Cliff. "The Development of a Management Information System for Area Vocational Education Centers in Michigan as Demonstrated at the Calhoun Area Vocational Center." Michigan State University, East Lansing, Ph.D. Dissertation, 1976.

Kriz, Paul. "Management of Educational Expenditure Through Goal Objective Analysis." Michigan State University, East Lansing, Ph.D. Dissertation, 1976.

Lynd, Albert. "The Identification of Criteria for Evaluating Graduate Programs in Higher Education at Big Ten Institutions." Michigan State University, East Lansing, Ph.D. Dissertation, 1976.

Martin, John R. "School-Based Placement - A Task Inventory to Determine the Training Needs of School Placement Personnel. Michigan State University, East Lansing, Ph.D. Dissertation in progress, 1976.

Stuhmer, Paul. "Expenditure Analysis: Implications for Michigan Central Cities." Michigan State University, East Lansing, Masters Thesis in Urban Planning, 1977.

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

The Middle Cities Education Association recognized the need for planning for vocational education at the local level and realized that barriers to the creation of effective planning included a lack of a technology for planning and a lack of personnel familiar with the planning process and the needs and purposes of planning. The Middle Cities Education Association through the Long-Range Vocational Education Planning Project has produced a system which has the capacity to greatly reduce the first barrier and has made efforts to alleviate the second.

With respect to the need for technology, the Long-Range Vocational Education Planning Project has achieved its major goal -- to begin the development of a planning technology and methodology for vocational education and to further point out the need for planning and the benefits that can accrue from long-range planning. The project has created a computer-based "policy" information system, so called because it focuses on the key pieces of knowledge that an administrator needs for effective policymaking. The project has also produced manuals, texts, information services, and dissemination materials to promote planning, to teach the planning process, to guide one toward the accomplishment of planning and to assist in the utilization of a computer-based policy information system.

With the Policy Information System, the Data Element Dictionary, the computer software and the other project manuals, the local vocational

administrator and planner now has a straight-forward method to utilize data and available information and to make projections for such key variables as future enrollments, student interest levels, occupational demand, facility needs and instructional and curriculum needs. Through the book, Planning for Vocational Education, the administrator is provided with an introduction to the planning process and its relationship to vocational education along with many useful ideas on where to go for necessary data, and how to interrelate the key variables as well as a discussion of future directions and trends in vocational education. The annotated bibliography supplies a summary of existing literature and sources pertaining to vocational education planning in order to provide the innovative administrator and the student of vocational planning with additional directions to turn in pursuit of his ideas.

With respect to improving the supply of vocational education planners or administrators competent in vocational planning, the project proposal laid out very important but limited objectives. The Long-Range Vocational Education Planning Project had two goals in this area. One was to develop a proposal for a Ph.D. curriculum in educational planning. A Ph.D. program plan has been developed, and the success of this effort is indicated by the interest at the university in implementing a master's as well as a Ph.D. program in educational planning. A second desire of the project related to the development of planning expertise was to create a cadre of future vocational

planners through the intensive involvement of several senior-level graduate students in the project development. Twelve such graduate students were employed by the project from the College of Education and the Division of Urban Planning at Michigan State University. Many of these people have since become increasingly involved in educational planning and have completed dissertations and theses in related areas.

In addition, the development of the model and the implementation of it in school systems has led to other related findings, conclusions, policy recommendations and suggestions for follow-up research. Some of these follow.

- 1) *Now that the technology for planning has been created by the project, the remaining barriers for truly effective long-range planning are a continuing lack of trained personnel to do planning and the need for a greater commitment to planning by school systems.*
- 2) *Inservice and preservice training programs for the utilization of planning systems need to be developed, tested, and implemented on a large scale at the local level.*
- 3) *School districts and administrators must allocate the time and resources to undertake long-range planning. This allocation must come from the top, because lower-level administrators will not embrace planning if it is viewed as an additional task. The reward system must encourage planning rather than discourage it.*

- 4) *In further responding to the need for school system commitment, pre-service and inservice training in vocational planning must not be designed only for program administrators but also for school system administrators and chief executive officers to insure a broad understanding of the need for and the usefulness of such a farsighted approach.*
- 5) *To insure future expertise in vocational planning a Ph.D. program with emphasis on educational planning should be established. As a result of this project, efforts to accomplish this are underway in Michigan.*
- 6) *Master's programs in educational planning should also be considered since many districts are not yet in a position to hire a Ph.D. degree holder.*

Given the current status of planning expertise in the vast majority of educational agencies in the nation, we conclude the following.

- 7) *Local decision-makers will not use a planning model if it appears to be too complex. One of the reasons why the state level MIS technology has not filtered down well to the local level and one of the reasons why many local administrators across the country are annoyed by planning requirements and compulsory cooperation with state MIS systems is that such systems are often too complex. Information systems for policy-making must focus on the key variables and the user must have a general understanding of the internal structure of the software even though he relies on the computer for calculation. The Middle Cities' goal was to make the Policy Information System as easy to understand and follow as possible. Future efforts at refining models for long-range planning of vocational education should acknowledge this fact and design systems that remain simple.*

- 8) Local administrators are more likely to use a planning model if it is capable of generating immediate rewards. Although a system must have the technical capacity to generate long-range projections and identify current actions for future benefit, it should also be able to pin point ways to immediately benefit the school system and promote improvement of current programs.
- 9) Planning for vocational programs must constantly work toward achieving a balance between student interest and occupational and labor market projections and needs. This involves steady improvement of data on student interest and the labor market as well as the capabilities to store and maintain such information for future use.
- 10) The decision on the weight given student interest in programs versus the actual opportunities that exist for vocational skills should be left to the local administrator. The Middle Cities' planning model allows this flexibility.

Conclusions concerning components of the planning model and resulting plans include the following.

- 11) The vocational planner must plan and search for facilities creatively and comprehensively. Virtually every community and school district has vacant or under-utilized buildings that could be adapted for use for vocational education.
- 12) Vocational education must be concerned with the capacity of its students to utilize skills on the job. The opportunity for students to find employment and the ability of the labor market to employ and use students' skills are critical to long-range planning. The link between the educational system and the economy is inevitable, and placement programs offer a primary benchmark in evaluating the success of programs.

- 13) Projecting enrollment in vocational programs is essential to effective planning and can be accomplished with a reasonable degree of accuracy. Although a completely satisfactory method for predicting student interest in each specific program has not been developed, the most effective method combines pre-enrollment data with local student interest surveys. Pre-enrollment techniques when combined with student interest surveys can yield information necessary for year-to-year planning. Pre-enrollment techniques encourage students to seek career guidance; and when they are used for students, remain the most efficient predictor of program needs. When used in concert with pre-enrollment techniques, student interest measures provide much needed information about program needs and selection.
- 14) Occupational training as it presently exists under current vocational education practices tends to concentrate on a narrow set of work skill achievements. These skills have been and continue to be determined by a job analysis which produces a list of required competencies needed by a worker. A curriculum focusing only on skill requirements all too often ignores the student's needs for learning how to learn or how to relate learning to living.
- 15) Cross-training programs for vocational instructors offer a definite yet largely unexplored opportunity for dealing with personnel and instructional needs and budgeting in a more flexible manner.
- 16) Use of systematic planning techniques can assist school officials in organizing data and ideas while projecting for the future. Planning techniques can assist school officials in identifying the key variables or factors affecting the future

of their vocational education programs. The products of this project provide the administrator with a planning model and techniques to begin long-range planning and a list of the best data sources for necessary base information. The planning process furnishes methods of understanding the interrelationships between the variables and systems that are curcial to vocational education..